CLAIMS:

1   1.   A system for provided distributed functionality to a plurality of clients

2   comprising:

3   a first provider server having a function provider module therein;

4   a data store connected to the function provider module and containing function

5   information defining at least one function object, each function object associated with a function

6   and comprising a function name element and specifying at least one parameter;

7   the function provider module being configured to:

8   (a) in response to receipt of a first type request from a requestor, return a set of function

9   objects to the requestor; and

10   (b) in response to receipt of a second type request from the requestor containing a

11   function object having defined parameter values stored there, evaluate the function associated

12   with the function object, modify the received function object to include results of the function

13   evaluation, and return the modified function object to the requestor.

1   2.   The system of claim 1, wherein each function object further comprises a function

2   ID and an identity of a respective provider server.

1   3.   The system of claim 1, further comprising a second provider server;

2   the function provider module in the first provider server further configured to:

3   issue a first type request to a second provider server; and

4   receive at least one function object from the second provider server in response;

5   the set of function objects returned by the function provider in the first provider server

6   comprising the at least one function object received from the second provider server.

1   4.   The system of claim 1, wherein:

2   at least one parameter specified in a function object is a group element in which group

3   data indicating a set of at least one atom can be specified;

4   the first provider server further comprising a group provider module configured to, in

5   response to a receipt of a third type request from the requestor, return group definition

6   information to the requestor.

5.   The system of claim 4, further comprising a second provider server;

the group provider in the first provider server further configured to:

issue a third type request type to a second provider server; and

receive group definition information from the second provider server in response;

the group definition information returned to the requestor comprising the group definition

information received from the second provider server.

1   6.   A system for providing distributed functionality to a plurality of clients

2   comprising:

3   a plurality of provider servers; and

4   a manager server connected to the provider servers;

5   at least one provider server comprising a function provider configured to:

6   (a) in response to receipt of a first type request, return a set of function objects,

7   each function object associated with a function and comprising a function name element and

8   specifying at least one parameter; and

9   (b) in response to receipt of a second type request containing a function object

10   having defined parameter values stored therein, evaluate the function associated with the

11   function object, modify the received function object to include results of the function evaluation,

12   and return the modified function object;

13   the manager server configured to:

14   (a) issue a first type request to each provider server having a function provider

15   therein;

16   (b) store the function objects returned in response to the first type request;

17   (c) upon receipt of a first type request from a requestor, return the function objects

18   stored in the data store to the requestor; and

19   (d) upon receipt of a second type request from the requestor containing a

20   particular function object, determining a particular provider server associated with the particular

21   function object, issuing a second type request containing the particular function object to the

22   particular provider server, receiving a modified particular function object from the particular

23   provider server, and returning the modified particular function object to the requestor.

1   7.   The system of claim 6, wherein at least one parameter specified in a function

2   object is a group element in which group data indicating a set of at least one atom can be

3   specified.

1   8.   The system of claim 7, wherein:

2   at least one provider server comprises a group provider configured to, in response to a

3   receipt of a third type request, return group definition information;

4   the manager server being further configured to:

5   (e) issue a third type request to each provider server having a group provider

6   therein;

7   (f) consolidate group definition information received in response to the issued

8   third type request;

9   (g) upon receipt of the third type request from the requestor, return the

10   consolidated group definition information to the requestor.

9.   A distributed data analysis system comprising:

a server connected to a network;

a client connected to the network;

the server being configured to:

5   (a) in response to receipt of a first type request from the client, return a set of

6   function objects, each function object being associated with a respective function and comprising

7   a function name element and at least one parameter element; and

8   (b) in response to receipt of a second type request from the client containing a

9   function object having defined parameter values stored there, return a modified version of the

10   received function object including results of evaluating the function associated with the function

11   object upon the defined parameter values;

12   the client configured to:

13   (a) issue a first type request to the server and receive the set of function objects in

14   return;

15   (b) update a function object associated with a particular function to contain

16   particular parameter values;

17   (c) issue a second type request to the server containing the updated function

18   object;

19   (d) receive a modified version of the updated function object from the server;

20   (e) extract the results from the modified particular function object; and

21   (g) generate an output related to the extracted results.

10.   The system of claim 9, wherein the client is configured to:

          display to a user a list of functions associated with the received set of function

objects; and

          receive a selection from the user of the particular function.

11.   The system of claim 10, wherein the client is further configured to:

2   display to the user a list of defined groups; and

3   receive a selection from the user of a specific group, the particular parameter

4   values comprising the user-selected group.

1   12.   The system of claim 11, wherein:

2   the server is further configured to, in response to a receipt of a third type request, return

3   group definition information; and

4   the client is further configured to:

5   issue a third type request to the server; and

6   receive group definition information from the server;

7   wherein the list of defined groups displayed to the user is related to the received group

8 definition information.

1   13. The system of claim 12, wherein:

2   the groups identify financial securities;

3   the set of function objects are associated with functions to return financial information

4 related to specified financial securities; and

5   the output generated by the client comprises a graphical representation of the results of

6 the user-selected particular function as applied to the user-selected specific group.

1   14. A method for provided distributed functionality to a plurality of clients

2 comprising:

3   providing a first server having function information defining at least one function object

4 stored therein, each function object being associated with a function and comprising a function

5 name element and specifying at least one parameter;

6   in response to receipt at the first server of a first type request from a requestor, return a

7 set of function objects to the requestor; and

8   in response to receipt at the first server of a second type request from the requestor

9 containing a function object having defined parameter values stored there, evaluating the

10 function associated with the function object, modifying the received function object to include

11 results of the function evaluation, and returning the modified function object to the requestor.

1 15. The method of claim 14, wherein each function object further comprises a

2 function ID and an identity of a respective provider server.

1 16. The method of claim 14, further comprising the steps of:

2 providing a second server;

3 issuing a first type request from the first server to a second server; and

4 receiving at the first server at least one function object from the second server in

5 response;

6 the set of function objects returned by the first server comprising the at least one function

7 object received from the second server.

17. The method of claim 14, wherein at least one parameter specified in a function

object is a group element in which group data indicating a set of at least one atom can be

specified, the method further comprising the step of in response to a receipt of a third type

request at the first server from the requestor, return group definition information to the requestor.

1 18. The method of claim 17, further comprising the steps of:

2 providing a second server;

3 issuing a third type request type from the first server to the second server; and

4 receiving group definition information from the second server in response;

5 the group definition information returned to the requestor comprising the group definition

6 information received from the second server.

1   19.   A method for providing distributed functionality to a plurality of clients

2   comprising:

3   providing at least one provider server;

4   providing a manager server connected to the provider servers;

5   in response to receipt at a particular provider server of a first type request, returning a set

6   of function objects, each function object associated with a function and comprising a function

7   name element and specifying at least one parameter;

8   in response to receipt at the particular provider server of a second type request, the

9   second type request containing a function object having defined parameter values stored therein,

10   evaluating the function associated with the function object, modifying the received function

11   object to include results of the function evaluation, and returning the modified function object;

12   issuing a first type request from the manager server to the provider servers;

13   storing function objects returned to the manager server in response to the first type

14   request;

15   upon receipt at the manager server of a first type request from a requestor, returning the

16   function objects stored in the data store to the requestor; and

17   upon receipt at the manager server of a second type request from the requestor containing

18   a particular function object, determining a particular provider server associated with the

19   particular function object, issuing a second type request containing the particular function object

20   to the particular provider server, receiving a modified particular function object from the

21   particular provider server, and returning the modified particular function object to the requestor.

1   20.   The method of claim 19, wherein at least one parameter specified in a function

2   object is a group element in which group data indicating a set of at least one atom can be

3   specified.

1   21.   The method of claim 20, further comprising the steps of:

2   in response to a receipt at the particular provider server of a third type request, return

3   group definition information;

4   issuing issue a third type request from the manager server to the provider servers;

5   consolidating group definition information received in response to the issued third type

6   request;

7   upon receipt at the manager server of a third type request from the requestor, returning

8   the consolidated group definition information to the requestor.

22.   A method for providing distributed data analysis comprising the steps of:

    providing a server connected to a network;

3   providing a client connected to the network;

4   in response to receipt at the server of a first type request from the client, returning to the

5   client a set of function objects, each function object being associated with a respective function

6   and comprising a function name element and at least one parameter element; and

7   in response to receipt at the server of a second type request from the client containing a

8   function object having defined parameter values stored there, returning a modified version of the

9   received function object including results of evaluating the function associated with the function

10   object upon the defined parameter values;

11   issuing a first type request from the client to the server and receiving at the client the set

12   of function objects in return;

13   updating a function object associated with a particular function to contain particular

14   parameter values;

15   issue a second type request from the client to the server containing the updated function

16   object

17   receive a modified version of the updated function object at the client from the server;

18   extracting the results from the modified particular function object; and

19   generating an output at the client related to the extracted results.

23.   The method of claim 22, further comprising the steps of:

        displaying at the client a list of functions associated with the received set of

function objects; and

        receiving from a user of the client a selection from of the particular function.

24.   The method of claim 23, further comprising the steps of:

2   displaying at the client a list of defined groups; and

3   receiving a selection of a specific group from the user, the particular parameter

4   values comprising the user-selected group.

1   25.   The method of claim 24, further comprising the steps of:

2   in response to a receipt at the server of a third type request, return group definition

3   information; and

4   issuing a third type request from the client to the server; and

5   receiving group definition information at the client from the server;

6   wherein the list of defined groups displayed to the user is related to the received group

7   definition information.

1   26.   The method of claim 25, wherein:

2   the groups identify financial securities;

3   the set of function objects are associated with functions to return financial information

4   related to specified financial securities; and

5   the output generated by the client comprises a graphical representation of the results of

6   the user-selected particular function as applied to the user-selected specific group.

27.   A computer implemented system for graphically displaying information related to

financial securities comprising:

a client computer connected to a network and having a computer program stored therein

to configure the computer to:

receive an indication of available financial data functions from a server connected to the

6   network;

7   receive group information indicating groups of financial securities from the server;

8   display the available financial data functions and groups to a user;

9   receive a selection of at least one function and at least one group from the user;

10   request an evaluation of the selected function having the selected group as a parameter

11   from the server;

12   receive results of the evaluation from the server; and

13   output a graphical indication of the results of the evaluation to the user.

1   28.   The system of claim 27, wherein the indication of available financial data

2   functions comprises a set of function objects, each function object associated with a particular

3   function and comprising a function name element and specifying at least one parameter.

1   29.   The system of claim 28, wherein the computer program configures the client

2   computer to request an evaluation by modifying the function object associated with the selected

3   function to indicate the contents of the selected group and returning the modified function object

4   to the server.

30.   A method for graphically displaying information related to financial securities

comprising the steps of,

    providing a client computer connected to a network:

    receiving at the client an indication of available financial data functions from a server

connected to the network;

    receiving group information at the client indicating groups of financial securities from the

7   server;

8   displaying the available financial data functions and groups to a user;

9   receiving a selection of at least one function and at least one group from the user;

10   requesting an evaluation of the selected function having the selected group as a parameter

11   from the server;

12   receiving at the client results of the evaluation from the server; and

13   outputting a graphical indication of the results of the evaluation to the user.

1   31.   The method of claim 30, wherein the indication of available financial data

2   functions comprises a set of function objects, each function object associated with a particular

3   function and comprising a function name element and specifying at least one parameter.

1   32.   The method of claim 31, wherein the step of requesting an evaluation comprises

2   modifying the function object associated with the selected function to indicate the contents of the

3   selected group and returning the modified function object to the server.